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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/496,656	02/03/2000	Yoshiinasa Saitoh	P99.2475	6539

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EXAMINER

HON, SOW FUN

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/496,656

Applicant(s)

SAITOH ET AL.

Examiner

Sow-Fun Hon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 8-13 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Rejections Withdrawn

1. The 35 U.S.C. 103(a) rejection dated 10/05/04 has been withdrawn due to Applicant's amendment dated 02/14/05.

New Rejections

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbons et al. (US 6,307,609) in view of Yamahara et al. (US 5,579,140).

Gibbons teaches a liquid crystal display (column 1, lines 35-40) comprising a pair of substrates being aligned via a predetermined distance therebetween (assembled with orthogonal orientation of the optically generated alignment direction, forming a cell with a cell gap or thickness) (column 12, lines 30-35), with at least one of them having thereon a film for liquid crystal orientation (alignment layer) (column 12, lines 28-31), and a liquid crystal layer put in the distance between the substrates (column 12, lines 30-40), wherein the film is a UV-reactive film (photosensitive alignment layer) (column 11, lines 60-65) and is exposed to first polarized UV rays (ultraviolet light) (column 10, lines 25-35), while the film is on the substrate aligned parallel to a reference plane, and next to second polarized UV rays after the substrate is rotated on the reference plane

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(The substrates are then rotated 90 degrees about the normal to the plane of the substrates and then exposed a second time by the optical exposure system) (column 11, lines 60-70).

Gibbons fails to teach that the substrates of the liquid crystal display are transparent.

Yamahara has a liquid crystal display device 1, comprising a pair of transparent (glass) substrates 6, 7 being aligned via a predetermined distance there between with at least one of them having thereon a film for liquid crystal orientation (alignment films 9, 11), and a liquid crystal layer 5 put in the distance (sandwiched) between the substrates (column 10, lines 20-35). Transparent substrates provide minimum interference to light rays, allowing maximum transmittance.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a pair of transparent substrates as the substrates of Gibbons, as taught by Yamahara, in order to provide maximum transmittance of light rays.

Gibbons also teaches that the exposure process allows control of the degree of polarization and collimation, leading to improved performance and new exposure geometries (column 2, lines 15-20). Gibbons fails to teach that the liquid crystal display has a contrast ratio greater than or equal to 138.

Yamahara teaches a liquid crystal display device 1, comprising a pair of transparent (glass) substrates 6, 7 being aligned via a predetermined distance there between with at least one of them having thereon a film for liquid crystal orientation

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(alignment films 9, 11), and a liquid crystal layer 5 put in the distance (sandwiched) between the substrates (column 10, lines 20-35).

Yamahara teaches that a high contrast ratio is desired (column 16, lines 15-20), with one example having a contrast ratio of 137 (column 15, lines 10-15). Yamahara teaches that the high contrast ratio (improving contrast) is effected by the amount of UV rays (column 53, lines 40-45) and geometry (pattern) of the irradiated region (column 53, lines 45-55).

Therefore, although Gibbons fails to teach that the liquid crystal display has a contrast ratio greater than or equal to 138, because Yamahara teaches that a contrast ratio of 137 is possible, effected by the amount of UV rays and geometry of the irradiated region, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have varied the amount of UV ray exposure and exposure geometries in the UV light exposure process of Gibbons, in order to provide a liquid crystal display with the desired contrast ratio of greater than or equal to 138, as effected by the exposure to the first polarized UV rays and the second polarized UV rays in the exposure process of Gibbons.

Regarding claim 9, Gibbons teaches that the substrates are rotated 90 degrees about the normal to the plane of reference (of the substrates), and the films on the substrates are exposed to a second polarized light (column 11, lines 60-70).

Regarding claims 10-11, Gibbons teaches that the angle of the exposure can be adjusted from about 0 to about 89 degrees (column 8, lines 35-45), which encompasses the claimed range of between 50 and 90 degrees relative to the reference plane, for the

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first exposure (claim 10), and of between 50 and 80 degrees relative to the reference plane, for the second exposure (claim 11).

Regarding claim 12, Gibbons teaches that the relative ratio of exposing energies is 4/1 between the first and second exposures (column 12, lines 20-30), within the claimed range of 100/1 and 1/1.

Regarding claim 13, Gibbons teaches that the light source is a UV lamp, which is a non-electrode discharge-type since it is gas excited by a microwave source (column 10, lines 25-35).

Response to Arguments

4. Applicant's arguments with respect to claims 8-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon

Sow-Fun Hon

05/13/05

Harold Pyon

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

5/16/05